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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,279	02/02/2004	Pietro Arturo Bernasconi	Bernasconi 6-4 (LCNT/1262)	2208
46363	7590	03/16/2006	EXAMINER	
PATTERSON & SHERIDAN, LLP/ LUCENT TECHNOLOGIES, INC 595 SHREWSBURY AVENUE SHREWSBURY, NJ 07702			WONG, TINA MEI SENG	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.		Applicant(s)	
	10/770,279		BERNASCONI ET AL.	
	Examiner		Art Unit	
	Tina M. Wong		2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is responsive to Applicant's response submitted 10 February 2006.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-7, 9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,597,841 to Dingel et al.

In regards to claims 1, 3, 7, 9, 10, 11 and 13, Dingel et al discloses polarization beam splitter (330) coupled to an arrayed waveguide grating, AWG, (Figure 6), where the AWG includes a star input coupler (20), a star output coupler (60) and a plurality of waveguides of unequal lengths. Dingel et al further discloses the input signal to be split by the AWG. (Column 5 Lines 55-65) Dingel et al additionally discloses the n-way coupler/splitter to be controllable to alter the branch signals by using an electro-optic effect. Although Dingel et al does not explicitly state a passive and active portion, where the active portion modifies at least one polarization component, Applicant further states in the Specification that a polarization splitter comprising opto-electronic devices is operable with passive and active portions. Therefore, Dingel et al discloses the active portion modifying at least one polarization component.

But Dingel et al fails to specifically disclose the input signal to arrive at different phase fronts of a free space region at the output side of the AWG, where the AWG splits the first and second polarization components. However, Dingel et al disclose a polarization beam splitter to

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split the optical signal into different branches based on polarization. Therefore, although Dingel et al does not explicitly state splitting the optical signal into different polarization components, it would have been obvious at the time the invention was made to a person having ordinary skill in the art since Dingel et al does disclose a polarization beam splitter equip with the function to split an input optical signal into different breaches based on polarization.

In regards to claims 4 and 5, Dingel et al discloses an input coupler to comprise of a star coupler. But Dingel et al fails to disclose the input coupler to comprise of a slab waveguide lens. However, Dingel et al does disclose the input coupler to be a slab coupler. Furthermore, Applicant states slab waveguide lenses have substantially similar functions as a star coupler and therefore can be used in place of star couplers. (Specification, Page 4 Line 32- Page 5 Line 2) Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used either a star coupler or slab waveguide lenses since Applicant states they perform the substantially the same function.

In regards to claim 6, Dingel et al discloses the apparatus to perform at least one of the wavelength multiplexing or demultiplexing for input signals.

Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,597,841 to Dingel et al as applied to claims 1 and 10 above, and further in view of U.S. Patent 6,853,769 to McGreer.

In regards to claims 2 and 12, Dingel et al fails to explicitly disclose the polarization components to comprise a TE mode and a TM mode. However, McGreer discloses the TE and TM polarization modes to be two principle modes. The TE and TM modes commonly exist within a signal when separating the modes by a polarization splitter. Therefore, it would have

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been obvious at the time the invention was made to a person having ordinary skill in the art for a signal having polarization components to have a TE mode and a TM mode.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,597,841 to Dingel et al as applied to claim 1 above, and further in view of U.S. Patent 5,838,870 to Soref.

In regards to claim 8, Dingel et al fails to disclose the polarization splitter to be fabricated from waveguides with a shallow etched buried rib structure and a thin film MQW on top of the rib structure. However, Soref discloses splitting waveguide signals where the waveguides are formed by etching and being placed in MQW layers. Therefore, since Dingel et al simply discloses a general polarization splitter and Soref discloses the details of the polarization splitter with waveguides, it would have been obvious at the time the invention was made to a person having ordinary skill in the art for the polarization splitter to be fabricated from waveguides with a shallow etched buried rib structure and a thin film MQW on top of the rib structure.

Allowable Subject Matter

Claim 14 is allowed. The prior art of record fails to disclose or reasonably suggest a method of fabricating a polarization splitter having an active and passive portion comprising all of the steps in the limitations claimed. More specifically, the prior art of record fails to disclose or reasonably suggest a monolithically integration technique to integrate a passive and active portion so that the active portion of the polarization splitter can actively modified each of the polarization components individually, after being split by the passive portion. Additionally, see Applicant's Arguments/Remarks received 10 February 2006.

Response to Arguments

Applicant's arguments with respect to claim 14 have been fully considered and are persuasive. The rejection set forth in the previous Office action, mailed 28 December 2005, paper number 122005 has been withdrawn. Furthermore, as indicated above, claim 14 is now allowed.

Applicant's arguments with respect to claims 1-13 have been fully considered but they are not persuasive.

Applicant argues Dingel et al fails to teach or suggest the limitation "wherein the passive portion and the active portion are integrated in accordance with active/passive monolithic integration techniques, wherein the active portion comprises at least one active device for modifying at least one of said first polarization component and said second polarization component." However, the Examiner disagrees. Applicant has argued by applying a monolithic integration technique to integrate the active and passive portions, the polarization components may be actively modified individually. However, the limitation, "monolithic integration techniques" is a method limitation in a device claim. Applicant is claiming a product, not a method of manufacturing the product. The Patent being sour in the preceding claims is an end product and is met by the Dingel et al reference. As presented in the previous Office action, mailed 28 December 2005, in the "Response to Arguments" section, the active and passive portions are integrated.

Applicant further argues Dingel et al does not modify the branch signal resulting from the splitting of the input signal by the n-way optical controller. Although the Examiner agrees, Dingel et al does not modify the branch signal resulting from the splitting of the input signal by

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the n-way optical controller, this argument does not reflect the claim language. The claim simply recites an “active device for modifying at least one of said first polarization components and said second polarization components.” As admitted by Applicant (See Remarks section, Page 7 of 13, Last paragraph, received 10 February 2006), Dingel et al teaches that the n-way optical coupler may be controllable to **alter** the ratio of the intensities of the branch signals. By altering the ratio of intensities of the branch signals, the branch signals are modified. The term modify, by the broadest definition, means to “change in form or character; alter.” (*The American Heritage® Dictionary of the English Language, Fourth Edition*) The claim language does not state when the polarization components are modified or altered, only that they simply are altered or modified. Therefore, as admitted by Applicant, Dingel et al does modify at least one of the polarization components.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

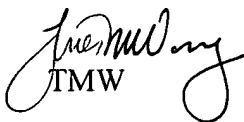
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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M. Wong whose telephone number is (571) 272-2352. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMW



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PRIMARY EXAMINER**